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Monsanto®

ANNUAL REPORT 1957

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SHAREOWNERS' NET INTEREST IN

PARENT COMPANY, DOMESTIC AND FOREIGN SUBSIDIARIES

AND ASSOCIATED COMPANIES

(In Thousands of Dollars Except Per Share Figures)

	1957	1956	Increase
Income:			
From sale of products	$708,005	$653,832	$54,173
From licenses, dividends, interest, etc.	6,104	3,675	2,429
	$714,109	$657,507	$56,602
Deductions from Income:			
For raw materials, fuel, supplies, etc.	$395,097	$368,555	$26,542
For wages and salaries to employes	152,007	136,663	15,344
For depreciation, obsolescence, depletion	53,331	46,795	6,536
For taxes	55,801	51,026	4,775
For interest, principally on long term debt	8,995	8,687	308
	$665,231	$611,726	$53,505
Which Left as Net Income	$ 48,878	$ 45,781	$ 3,097
Distributed to Shareowners as Cash Dividends	21,517	20,992	525
Retained for Future Growth	$ 27,361	$ 24,789	$ 2,572
Per Common Share Parent Company:			
Net income	$ 2.20	$ 2.13	$ .07
Cash dividends paid	1.00	1.00	
Book value	19.24	18.18	1.06
Common Shares Outstanding	22,226,629	21,446,461	780,168

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TO THE SHAREOWNERS

THE YEAR'S RESULTS

Believing that shareowners should be cognizant that much of Monsanto's post-war investment of money, personnel and effort has been in the organization and development of associated domestic and foreign companies, we stress that our proportions of these companies' assets now approximate one-third of those of the parent company. They are expected to contribute to the Monsanto shareowners' ultimate profit in like proportion. It is for this reason that we are reporting both by consolidating the assets and earnings of such interests and by the usual consolidation of the parent company and its wholly-owned domestic and Canadian subsidiaries alone.

Sales in 1957 by the parent company, its domestic and foreign subsidiaries and that portion of the sales of associated companies represented by our 50 per cent ownership totaled $708,004,936, an increase of 8.3 per cent over 1956. Net earnings from such sales amounted to $48,877,895, an increase of 6.8 per cent which, after allowance for taxes that would be payable if all undistributed portions of subsidiary and associated company earnings were received by the parent company as dividends, were equivalent to $2.20 a common share. In 1956 such earnings were equivalent to $2.13 a share.

There were 22,226,629 shares outstanding at the year end, which is 780,168 greater than 21,446,461 outstanding at the close of 1956. Of the increase, 435,816 resulted from the two per cent stock dividend paid December 15, 1957; 19,352 shares were bought by optionees and 325,000 represent the cost of our participation in the Plax Corporation, which is discussed fully on page 11.

Sales of $567,116,091 by the parent company, its domestic and Canadian subsidiaries alone were 4.7 per cent higher than those of 1956. Earnings of this group alone were $37,416,151, equal to $1.68 per share, compared to $38,645,533 in 1956, $1.80 per share.

The first 9 months' earnings were somewhat better than those of the previous year. The fourth quarter, however, felt the full impact of lower business activity. Sales were disappointing and lower profits brought the year's total to a level which compared unfavorably with prior years.

Capital expenditures in 1957 of subsidiaries, the parent company and its proportionate share of such expenditures by associated companies totaled $90,085,000.

Of the sum, the amount of associated companies' outlays represented by our 50 per cent ownership was $26,232,000, our unconsolidated subsidiaries, $9,449,000, and, of the balance, $11,401,000 was the capitalized portion of Lion Oil's expenditures for oil and gas properties and their development.

The parent company's 1957 expenditures fell short of forecast as one major project was delayed to take advantage of process improvements recently developed in laboratory and pilot plant work; several others of lesser magnitude were deferred.

THE YEAR'S ENVIRONMENT

Steadily increasing labor and transportation costs continued to militate against improved earnings. During the year, salaries and wage rates increased approximately 5 per cent; freight rates rose 10 per cent. Imported organic chemicals and plastics made inroads upon our normal markets and profit margins.

Selling prices did not respond uniformly to the increased costs. However, those of nitrogen derivatives rose July 1, but too late to affect substantially the year's profits from this seasonal product group. Prices of many products did not advance; those of several important ones, including styrene and polystyrene, declined, as did those of polyethylene and polyvinyl chloride.

In quest of countervailing economies, natural gas and ammonia from the former components of Lion Oil Company, which was absorbed in 1955, were

channeled into chemicals and plastics, especially those produced in Texas City. Technological improvements are being pushed.

To compensate for a succession of rail-freight rate increases, we are taking advantage of our plant locations to increase the water-borne movement of both raw materials into our plants and our products to other plants or customers. In addition to the 16,000-ton vessel plying between Texas City and the East Coast, barges move into and out of Texas City by the inter-coastal canal and navigable rivers which flow into it. Our Avon, California, plant is on San Francisco Bay's deepwater. Our Everett plant in Boston Harbor, the Texas City plant on the Gulf Coast and our Luling plant on the lower Mississippi dock sea-going ships. In addition, Nitro, West Virginia, Port Plastics, Ohio, and Monsanto, Illinois, plants have docking facilities on either the Mississippi or Ohio waterways. Our St. Louis and Carondelet, Missouri, plants have access to nearby Mississippi River docks. Our Trenton, Michigan, plant fronts on the Detroit River; the St. Lawrence Seaway can be used upon its completion.

INORGANIC CHEMICALS

Phosphorus and Phosphate Products

The company's participation in U. S. production of phosphorus—from which phosphoric acid and phosphates are derived—rose in 5 years from 30.9 per cent to an estimated 34.6 per cent at the year end.

New concepts of elemental phosphorus production in electric arc furnaces improved operations at Monsanto, Tennessee, and Soda Springs, Idaho. In the former a new ore beneficiation unit began operations in March.

A high-purity sodium tripolyphosphate—consumed by the detergent industry at a rate of 1½ billion pounds a year—is being produced in plants at Trenton, Michigan, Kearny, New Jersey, and Carondelet, Missouri, by new manufacturing methods.

Facilities to manufacture newly-developed dry bleaches, trademarked *ACL-85* and *-70,* came on stream in Everett, Massachusetts, in September. Safe, convenient and packaged in cartons, the new high-chlorine-analysis products are now used in industrial and household bleaches, scouring powders and sanitizing agents.

Technological improvements continue in our calcium phosphates which are used as leavening agents and additives in dentifrices and foodstuffs.

Among new detergent intermediates developed was a superior alkyl-benzene sulfonate which has better detergency and lathering qualities. Such a material is of growing interest to the detergent industry.

Nitrogenous Products

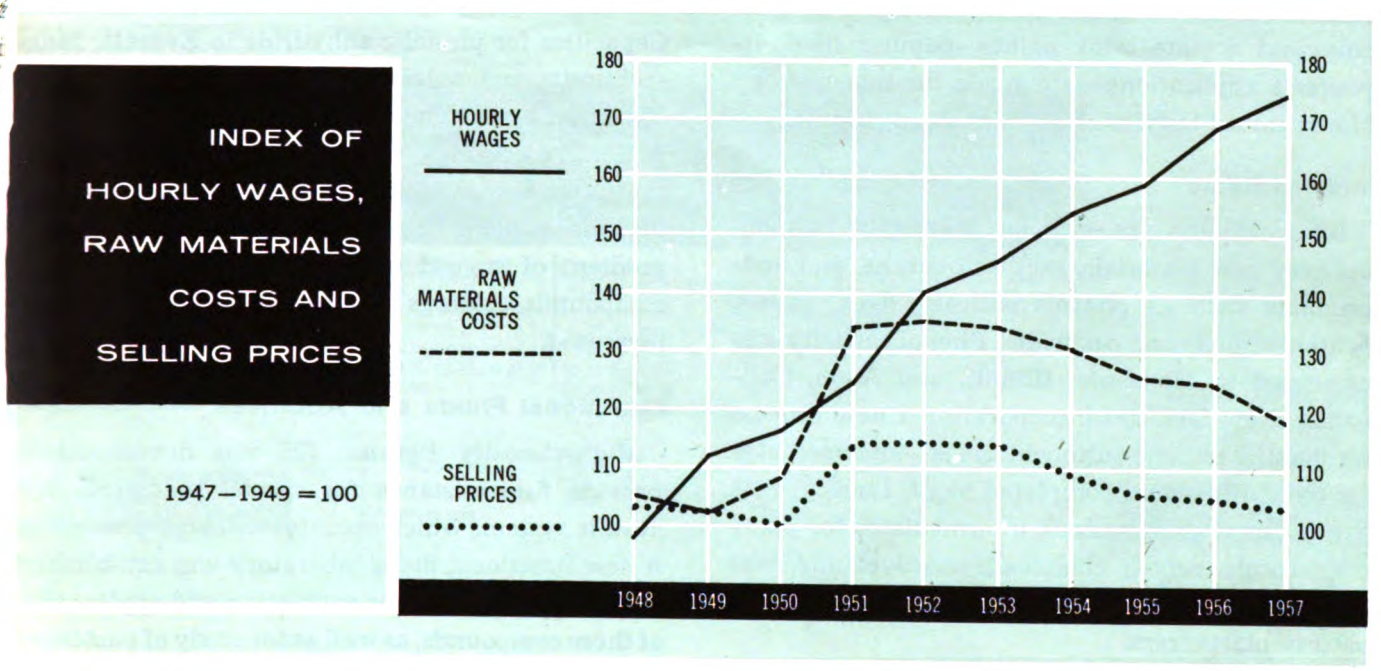
Sales of nitrogenous products increased. Sales of anhydrous ammonia and ammonium nitrate pellets rose sharply, but the lower prices realized prevented any improvement in profits.

Industrial consumption of our ammonia rose from almost nil in 1955 to 26 per cent of our 1957 production; more industrial outlets are being developed to minimize the seasonal characteristics stemming from the dominant use of these products as a fertilizer base.

Construction of a 100-ton-per-day unit for urea has started at El Dorado, Arkansas; start-up is scheduled for next fall. Ammonia and carbon dioxide, raw materials for urea, are produced at the El Dorado plant. Urea will enable Monsanto to expand its participation in the rapidly increasing use of concentrated fertilizers. In addition, our Plastics Division consumes urea in the production of plywood adhesives, textile finishes and binders for granulated wood; urea is the base of our new bleaching compounds, *ACL-85* and *-70.*

Concentrated nitric acid facilities at El Dorado went on stream in May. Equipment was acquired to barge ammonia from Luling, Louisiana, to Texas City and other large consuming points; barging from El Dorado began in October.

A granular fertilizer pilot demonstration plant was completed at the St. Louis laboratory, where technical personnel, aided by electronic computers, determine the exact formulations needed for vari-



ous soils and devise the most economical methods of formulation.

Other Inorganic Chemicals

Facilities for alum—important to the paper industry—are being modernized at Everett, Massachusetts. Expansion of the Avon, California, sulfuric acid unit will be finished this spring. A dock for receiving barges of molten sulfur, raw material for sulfuric acid production, and propylene tetramer was completed at Monsanto, Illinois. A new stabilizer for liquid sulfur trioxide was developed; a plant to produce this key sulfonating compound is planned.

By September, occupation of the Inorganic Chemicals Division's new research laboratory in St. Louis was completed. Here, technical personnel in advanced facilities, are carrying on research and development programs for phosphate and other inorganic products. More than 80 applications of plastics were incorporated in the new laboratory, many conceived and developed by Monsanto's architects and engineers; most are now standard articles of commerce.

ORGANIC CHEMICALS

Monsanto's organic chemical groups are a direct outgrowth of the chemistry upon which, in 1901, the company was founded. A massive technology in this complex field has been accumulated; 400 diversified organic products in 8 major product groups which are used in more than 25 industries are produced. No group accounts for more than 16 per cent of organic chemical sales. Ten years ago almost two-thirds of these sales came from but 3 groups. Products added in the past 10 years account for 29 per cent of sales; those new in the past 5 years for 15 per cent.

Plasticizers

Plasticizers, which impart flexibility and other desirable properties to plastics, reached record sales' levels last year. Chief factor was the excellent reception of *Santicizer 160,* which is dominant in the manufacture of vinyl floor tiles. Low-odor *Santicizer 141* increased its participation in non-toxic applications such as plastic food wraps. Another new one — dicyclohexyl phthalate — imparts to cellophane a moisture-resistant coating which pro-

tects the freshness of self-service meats. Resins for polyvinyl acetate latex paints—popular in do-it-yourself applications—are made flexible now by Monsanto's dibutyl maleate and dibutyl fumarate.

Intermediates

Intermediates are organic chemicals halfway between raw materials, such as benzene, and end-products such as pharmaceuticals, dyes, paints, synthetic fibers and pesticides. Phenol capacity was expanded in Monsanto, Illinois, and Avon, California. New facilities incorporating a new process for making toluene-sulfonchlorides—intermediates for dyestuffs—were completed in St. Louis. Texas City's capacity for amines, intermediates for pharmaceuticals, rubber chemicals and dyestuffs, was enlarged again, as was capacity for benzyl chloride, used in plasticizers.

Paper Chemicals

In Nitro, West Virginia, a new unit for the extraction of a raw material for *Mersize* from tall oil is scheduled to operate early in 1958. Concomitant products from this plant will go to Emery Industries, Inc., its joint owner. *Mersize* increases the water-resistance of paper for such applications as frozen food cartons. A bulk station for *Mersize* was established at Kalamazoo, Michigan.

Fine Chemicals

Monsanto has been a major supplier of bacteriostats which combat skin bacteria. Bacteriostats are used in deodorant soap and detergent cakes which now account for 1 out of 4 toilet soap sales. Facilities for *TCC,* a new bacteriostat, were completed at St. Louis. Increased demand for vanillin, a flavor for cake and cookie pre-mixes and candies, prompted an expansion of our Seattle, Washington, plant.

Resin Materials

An adipic acid plant in Luling, Louisiana, integrated with the nitrogen products which are produced there, started in late summer. Adipic is an ingredient of urethane foams, plasticizers, protective coatings, polyester resins and lubricants. Capacities for phthalic anhydride in Everett, Massachusetts, and maleic anhydride in St. Louis, were increased again. The former is a raw material for protective coatings, reinforced plastics, dyestuffs; the latter for protective coatings, structural plastics, insecticides. Production of bisphenol "A," ingredient of rugged epoxy resins for pipe fitting compounds, coatings and other industrial uses, was increased.

Functional Fluids and Additives

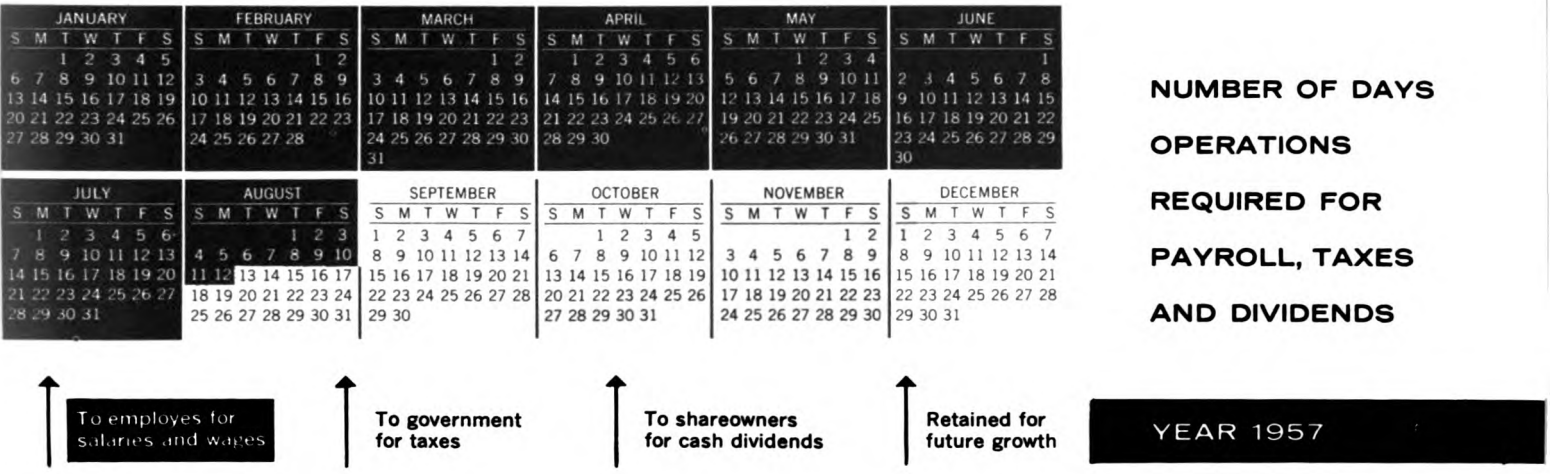
High-viscosity *Pydraul 625* was developed to provide fire-resistance for special industrial hydraulic systems which operate with high pressures. A new functional fluids laboratory was established in St. Louis for broader evaluation and application of these compounds, as well as for study of customer problems.

Santolene H-LV, a new low-viscosity fuel oil additive, was introduced to overcome screen and filter clogging in home heating units and diesel locomotives. Capacity for *Santolube 393,* introduced last year to formulate detergent additives for oils, was enlarged greatly. Facilities for *Aroclors,* used as dielectrics and heat transfer fluids, were expanded.

Agricultural Chemicals

In a unit of our Nitro, West Virginia, plant, we manufactured methyl parathion, used primarily to control boll weevils in cotton fields, and a companion product, *Niran,* effective in control of a wide variety of crop-damaging insects.

On April 16, a thermocouple in this unit failed to record properly a vessel's temperature. A serious explosion resulted, killing 8 employes and ending, for the time being, Monsanto's enviable safety record. The unit was destroyed. The employes' families were compensated liberally. Monsanto's loss of property and profits resulting from the explosion was covered by insurance. To prevent a repetition of the disaster, detailed technical information concerning the instrument failure and the



steps Monsanto has taken to prevent recurrence has been given to other manufacturers.

At the year end production of methyl parathion and *Niran* was beginning again in Anniston, Alabama, in a new plant of advanced design and enlarged capacity, with adequate safeguards against a repetition of the disaster. Production was shifted to Anniston as we produce raw materials for these products there; furthermore, Anniston is in the proximity of citrus and cotton growing areas.

Sales of *Vegadex*, a unique grass-specific weed killer, and *Randox*, a pre-emergence herbicide, grew as these chemicals found use on additional crops.

Construction of a new agricultural chemicals laboratory and greenhouses started in St. Louis. Scheduled for occupancy in mid-1958, the facilities will provide space needed for additional personnel whom we anticipate assigning to agricultural chemical research. A new laboratory to explore high pressure reactions and to extend the range of organic chemical pressure processes was activated in St. Louis also.

PETROLEUM OPERATIONS

Lion Oil Company Division carries on the company's petroleum operations, including the purchase of petroleum fractions used by other divisions, and the conversion of petroleum and natural gas products to such petrochemical starting points as ethylene. Current exploration and drilling are based on a 10-year program. Efforts are being intensified to increase oil and gas reserves in areas near Monsanto operations on the Gulf Coast.

Lion joined the Tennessee Gas Transmission Company, the Union Oil and Gas Corporation of Louisiana and the Murphy Corporation in a 4-way partnership to search for oil and gas in the western hemisphere, outside the United States and Canada.

The first venture of this group, in which we have a 15 per cent interest, in Venezuela's Lake Maracaibo, proved successful. The first well drilled on its 2,000-acre concession proved most promising. Further drilling must precede specific estimates of this concession.

The group also acquired a 900,000-acre concession in Bolivia, where exploratory activities have begun. We have a 25 per cent interest in this venture.

With Societa Edison of Milan, Italy, we continued evaluating 780,000 acres in Sicily, in which we have a 45 per cent interest. Exploratory wells

required on this acreage have been completed; essential geological data have been obtained. Evidence of oil and gas has been encountered, but commercial production has not yet been discovered.

Exploration in Canada uncovered substantial oil reserves in Saskatchewan. Five wells have been completed as producers; additional development and exploratory activity continues.

A natural gas and distillate reservoir was discovered in Lafayette Parish, Louisiana. Two successful wells have been completed on a 5,000-acre block in which we have a half interest.

Successful wildcat wells were completed in 6 states. Development wells were drilled in 4 of these states as well as in 4 other states. Within the United States, Lion joined in drilling 101 gross wells, of which our ownership was equivalent to 71 net wells. Of these, 44 gross or 35 net produced oil; 15 gross or 9 net, gas. The year's work increased the total of domestic and foreign oil and gas reserves in excess of withdrawals.

To curtail partially the post-Suez importation of cheaply produced Near-East crude oil and related products, the government established a voluntary import limitations program. Oversupply of crude oil, attributable in most part to imports, caused, in most oil-producing states, drastic restrictions on the amounts permitted to be withdrawn from wells. Import limitations, if effective, should assure continued expansion of domestic oil and gas resources.

The El Dorado refinery set new records for crude oil processed. The addition of a catalytic reformer, scheduled to operate in the last quarter of 1958, will permit conversion of low octane naphtha into high octane gasolines. The new Texas City ethylene plant came on stream in April; design capacity was exceeded.

Higher sales of gasoline and refinery products were a prime factor in the Lion Division's sales gain, and contributed to its better earnings, as did its exploration and production department. Crude oil sales were lower, due to reduced production allowed by state authorities, but higher prices compensated.

PLASTICS

Competitive Markets

Domestic 1957 plastics production of almost 4 billion pounds, and sales of nearly $2 billions, were about 15 per cent of those of the entire chemical industry. In recent years plastics have grown at a rate almost 4 times that of all industry. Monsanto's 1957 plastics' sales were at record levels, too, and most monomer and polymer plants operated at capacity. Earnings, however, did not increase correspondingly. The anomaly was due only in part to rising costs.

The primary cause was increasingly intense and complex competition which developed as plastics moved into more demanding industrial markets, and as more manufacturers entered the field. In 10 years the number of producers of bulk plastics, like Monsanto, has increased from 50 to 93. The inevitable results were price reductions in standard materials and greater research, development and engineering expenditures to provide new and better materials.

Despite this "rough and tumble" environment, Monsanto increased its share of the American market approximately 17 per cent during the 5 years ending with 1956, the last year for which data are available.

Notable Developments

During the year, Monsanto introduced more than 30 new polymer formulations to consolidate its position in the 6 industries which consume about 70 per cent of all plastics—packaging, electrical, automotive, construction, appliance, surface coatings.

It is estimated that the annual, in-place value of plastics used in construction, now at the $500 millions level, may rise to $2 billions within 10 years. Hence, we continue active application research in this field; several new products and important new applications resulted recently. Plastic sandwich panels, for which we supply raw materials, are now being used for walls, partitions and roof sections; they are suitable, too, for factory-

assembled or prefabricated building components and homes. A new *Ultron* vinyl film shares in the market for vapor barrier in flat-deck roofing. A light-stabilized *Lustrex* styrene compound is used extensively in fluorescent lighting fixtures.

Teraise, a new wall covering based on a specially formulated plastic, was developed and is being manufactured in interim facilities. The product resulted from a project which seeks aesthetic functional applications for plastics.

A "prototype" marketing project culminated in the introduction by several of our customers of *Lustrex*-molded styrene furniture drawers to furniture manufacturers.

In June, Monsanto's *House of the Future*, another example of the company's "prototype" approach to plastics marketing, opened at Disneyland, after 3 years of planning by Monsanto and 12 cooperating companies, each prominent in its segment of the building supply and home equipment industries. The *House of the Future* has aroused great interest among architects and the public. At the year end, it had been inspected by 1,260,476 visitors.

In the automotive industry, new *Ultron* formulations were used in upholstery and decorative trim; new *Resinox* phenolic resins found applications in oil filters, battery insulation, ignition systems, timing gears and brake linings. Several new *Resinox* compounds, specifically designed for the automotive industry's trend toward automation, were well received.

A new *Opalon* vinyl molding compound, stable over a wide temperature range, was introduced for wire insulation of military and other aircraft.

At year end major marketing efforts were still being exerted for *Lustrex* polystyrenes, and the higher volume achieved has compensated in part for the lower prices which prevail. Styrene monomer volume has increased, too, but not sufficiently to counterbalance the mid-year price decrease. The greater volume required an increase in our styrene monomer capacity.

Broadening markets for acrylic fibers taxed our acrylonitrile plant; hence, initial steps have been completed to increase its capacity to 100,000,000 pounds annually. Acrylonitrile is also finding substantial consumption in synthetic rubbers and plastic copolymers.

Improved technology increased the capacity of our natural gas cracking units which produce acetylene for acrylonitrile and vinyl chloride. Substantial economies resulted from delivery to Texas City of natural gas from the Lion Oil fields in Brazoria County, Texas, 40 miles distant.

After a long period of faulty operation, Texas City's methanol plant, owned jointly with Heyden-Newport Chemical Corporation, produced at design rates during test runs.

While the Texas City polyethylene plant operated at design capacity with a broader range of products than last year, its profitability will not become satisfactory until modifications, anticipated to be in operation this coming summer, make their contribution by lowering costs and increasing output.

In Springfield, a major expansion for an improved high-impact *Lustrex* was undertaken; production is expected during the second quarter of 1958. Production of *Opalon* was increased through development of a more efficient process.

Important technological improvements were incorporated in the *Saflex* vinyl butyral unit completed in Trenton, Michigan, which produces the widest film on the market for laminating safety glass.

all

In May, Lever Brothers Company purchased from us the trademark and franchise to market the detergent *all* and *Dishwasher all*. We have contracted to manufacture these products for Lever Brothers for a period of years and, for an interim period, to package them.

This agreement permits Monsanto, in the detergent field, to devote all of its energies to the development and sale of its chemicals to detergent manufacturers.

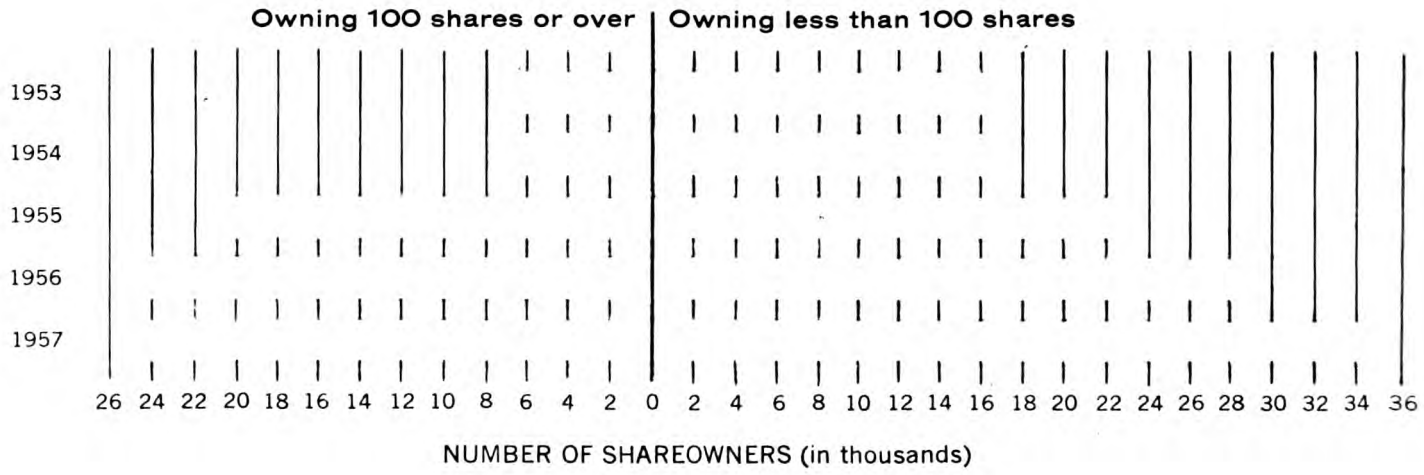
SHAREOWNERS OF RECORD

	1957		1956		1955		1954		1953	
	Number of Shareowners	Number of Shares	Number of Shareowners	Number of Shares	Number of Shareowners	Number of Shares	Number of Shareowners	Number of Shares	Number of Shareowners	Number of Shares
Men	22,877	4,811,506	20,412	4,788,326	16,702	4,536,291	8,572	1,002,957	8,740	1,096,300
Women	20,017	3,799,064	18,433	3,667,225	15,149	3,627,534	9,135	883,346	9,164	914,927
Joint Accounts	9,756	648,250	7,641	563,826	5,147	465,640	1,729	62,279	1,763	63,433
Charitable Institutions	288	206,025	145	147,082	154	133,830	133	44,429	130	46,132
Educational Institutions	139	145,224	117	117,618	105	126,631	89	40,414	87	44,324
Estates and Trusts	4,716	2,004,601	4,155	2,722,940	3,730	2,634,281	3,099	791,615	3,114	793,491
Insurance Companies	179	767,352	180	793,439	168	780,424	152	254,374	156	254,636
Brokers and Nominees	1,158	8,856,181	971	7,723,290	1,767	7,738,397	894	2,022,934	850	1,874,098
All Others	906	988,426	964	922,715	694	955,917	419	167,703	411	182,710
Total	60,036	22,226,629	53,018	21,446,461	43,616	20,998,945	24,222	5,270,051	24,415	5,270,051

STATES:	Number of Shareowners	Number of Shares
Alabama	313	152,210
Arizona	167	30,552
Arkansas	1,089	566,939
California	5,049	989,704
Colorado	513	101,999
Connecticut	2,538	605,654
Delaware	268	450,975
District of Columbia	572	152,975
Florida	1,029	205,505
Georgia	466	89,289
Idaho	72	6,741
Illinois	4,512	1,373,252
Indiana	697	136,886
Iowa	397	49,516
Kansas	348	73,897
Kentucky	509	85,830
Louisiana	682	118,431
Maine	369	61,432
Maryland	1,058	295,022
Massachusetts	4,836	2,494,844
Michigan	1,840	442,053
Minnesota	863	237,355
Mississippi	252	32,187
Missouri	4,619	1,773,702
Montana	138	19,610
Nebraska	147	19,112
Nevada	51	18,564
New Hampshire	299	57,242
New Jersey	2,764	634,058

STATES:	Number of Shareowners	Number of Shares
New Mexico	86	7,639
New York	10,236	6,916,075
North Carolina	384	118,122
North Dakota	60	6,469
Ohio	3,024	1,177,098
Oklahoma	228	26,928
Oregon	246	49,765
Pennsylvania	3,019	1,266,224
Rhode Island	733	157,150
South Carolina	198	24,308
South Dakota	52	5,200
Tennessee	522	87,009
Texas	1,554	304,825
Utah	153	22,156
Vermont	132	18,293
Virginia	737	123,992
Washington	498	189,878
West Virginia	269	85,517
Wisconsin	912	183,125
Wyoming	59	6,325
U. S. POSSESSIONS:		
Alaska	6	297
Guam	1	79
Hawaii	185	16,324
Panama	11	543
Puerto Rico	9	260
Virgin Islands	1	11
Wake Island	1	17

FOREIGN COUNTRIES:	Number of Shareowners	Number of Shares
Africa	2	30
Argentina	2	90
Australia	1	10
Belgium	2	99
Bermuda	5	649
Brazil	1	25
Canada	171	145,501
Chile	1	10
Colombia	2	97
Cuba	6	289
Denmark	1	55
England	30	5,938
Formosa	1	85
France	4	1,128
Germany	4	191
Honduras	1	17
Ireland	3	1,179
Italy	1	51
Japan	1	25
Mexico	6	547
Peru	1	26
Philippines	2	40
Scotland	1	62
Switzerland	9	1,141
The Netherlands	2	93
Venezuela	3	86
Total	60,036	22,226,629



OVERSEAS

Sales of products produced by our foreign subsidiary and affiliated companies, together with exports from the United States, increased.

Monsanto Chemicals Limited, our British associate, improved both its sales and earnings. It increased its capacities for phenol, rubber chemicals phthalic anhydride; a plastic copolymer plant began operations.

During the spring we remitted to Monsanto Chemicals Limited some $3.8 millions, the cost of exercising rights to two-thirds of the new common shares offered to its shareowners. The British public, holding the other third, subscribed for its proportion, also. And in the fall this subsidiary sold £3 millions—about $8,400,000—of 6 per cent debentures to the British public. Common shares of Monsanto Chemicals Limited were quoted on the London Stock Exchange during December at approximately 13 shillings, 6 pence, indicating a market value for our holdings of $27 millions.

The new monies are required for additions to plant and working capital, including the previously reported petrochemicals venture at Fawley, a suburb of Southampton. Construction of a polyethylene plant has begun on this site, which is adjacent to Esso Petroleum Limited's refinery. Esso's offgases will be raw materials.

Monsanto Canada Limited completed major expansions for new forms of polystyrene and polyvinyl chloride; it has begun manufacture of rubber chemicals, also.

In Japan, Monsanto Kasei expanded both its polystyrene and polyvinyl chloride production. Monsanto Australia began operation of a new formaldehyde plant in Melbourne. Monsanto Mexicana, while undertaking no major expansions, completed a most successful year. In France, Monsanto Boussois enlarged its plants for high-impact and other forms of polystyrene. Production of these plastics was achieved also at the new Buenos Aires plant of Monsanto Argentina S.A.I.C. In Spain, negotiations were completed for formation of a new company for manufacture of plasticizers and other products for the Spanish plastics industry; our interest will be 25 per cent. Our affiliated company in Italy, Sicedison, in which our interest was 13.3 per cent at year end, completed plants for production of ethylene, styrene monomer, polystyrene and dodecylbenzene.

The most important politico-economic development of our time—one whose portent to American industry cannot now be assessed—is the coming into being of the European Common Market. Through a treaty which establishes supranational authorities, France, West Germany, Italy, Belgium, Holland and Luxembourg—now referred to as "The Six"—are bound to abolish tariffs between themselves and raise a common tariff wall against all other nations. And the magnitude of this event soon may be dwarfed by the establishment of a 17 nation (including "The Six") Free Trade Area—an economic United States of Europe having a population exceeding 285 millions and a gross national product exceeding $275 billions.

It is a favorite American assumption that our economic growth is more rapid than that of any other nation, and we attribute this phenomenon to our great land mass, our large industrious population and a high rate of capital investment.

However, during the last decade the rate of economic growth of Europe's individual nations has outpaced our own. In most cases the percentage of national incomes going into capital investment exceeded our own. In either the Common Market or Free Trade Area there will be a large land mass and a large, industrious population. Hence, in either case, modern technology and mass production will be warranted and salaries and wages there average less than one-third of our own. Thus, we may visualize the shape of future European competition from "The Six," and perhaps the Free Trade Area, not only in the world markets, but within our own borders.

But if Monsanto, U.S.A., and its employes do not stand to gain as these events unfold, Monsanto's overseas establishments in Britain and our European affiliates should. We are making plans to ex-

pand our European interests in order to participate to a greater extent in the benefits that will accrue to European manufacturers.

RESEARCH

In 1957, Monsanto invested about $22.7 millions in research, development, patent work and basic engineering, compared with some $19.2 millions in 1956. This year, 25 per cent was spent for new product research; 31 per cent for exploratory work; and 44 per cent for improvement of existing products.

Contributions from this program to the company's progress must already be evident to the reader, since more than 50 specific developments have been mentioned in the preceding sections. Not as obvious are the product, process and application efforts on new developments which will contribute to our future growth and which will be revealed when in successful application.

Each division supplements its work on improvement of products, processes and uses with exploratory research the goal of which is the creation of such new opportunities. The Research and Engineering Division carries major responsibility for such creative research, however, and from its laboratories came 14 new developments during 1957, exploitation of which now is in the hands of the 4 domestic operating divisions. The studies of that division in its Dayton, Ohio, laboratories, were expanded in the areas of engineering technology, plastics, organic chemicals, inorganic chemicals and biology. Nearby, at Miamisburg, Ohio, the division operates the Mound Laboratory for the Atomic Energy Commission, and at Everett, Massachusetts, Research and Engineering has installed a facility to work for the U. S. Government on problems of importance to the nation's defense.

To augment our domestic efforts, the company completed during 1957 the organization of a modest laboratory in Zurich, Switzerland, where exploratory research of a fundamental nature will be conducted by a staff of European scientists under the leadership of one of our experienced research directors.

INVESTMENTS IN ASSOCIATED COMPANIES

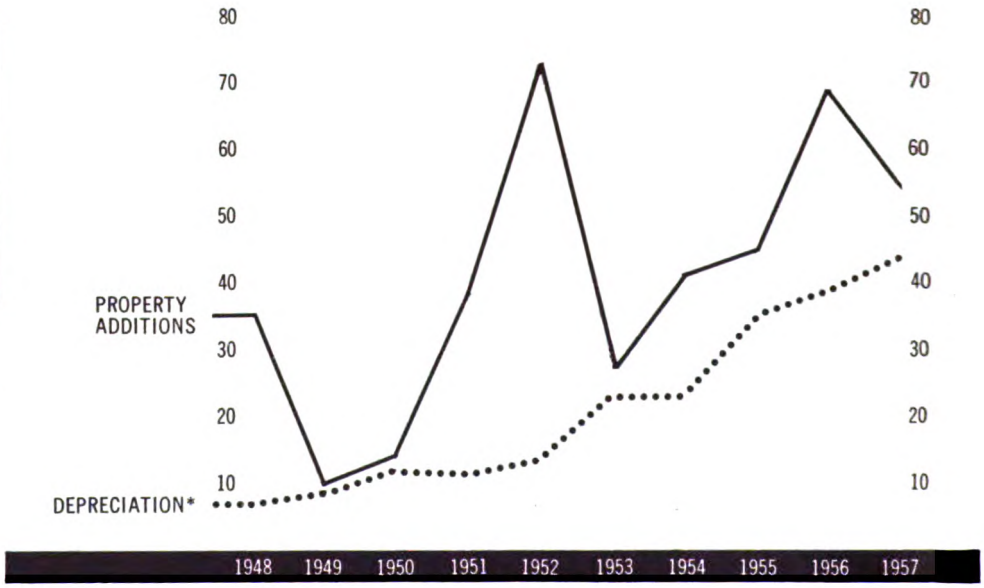
Chemstrand Corporation

The Chemstrand Corporation, which we own jointly with the American Viscose Corporation, had a successful year. Reflecting increased nylon capacity and improved *Acrilan* operations, its profits were substantially greater than those of 1956. Chemstrand has issued its own 1957 Annual Report, which has been mailed to Monsanto shareowners with this one, but under separate cover.

GROSS ADDITIONS TO PROPERTY AND DEPRECIATION* (in $ millions)

*Depreciation includes: depreciation, obsolescence, amortization and depletion.

1955, 1956, 1957 include Lion Oil.



Mobay Chemical Company

Sales of Mobay Chemical Company, owned jointly with Farbenfabriken Bayer of Leverkusen, Germany, increased. But a sharp setback suffered in April, caused by partial technological shift from polyester-based to lower-cost and more versatile polyether-based urethanes, delayed the profit break-through. A marked advance in the quality of foams for furniture, house furnishings and automotive fields followed the introduction of polyethers. The original foams remain more suitable for some uses such as clothing interliners.

Mobay provided its licensees with information on new *Vulkollan* formulations. *Vulkollan* is a solid, rubber-like material with exceptional resilience and abrasion-resistance. *Vulkollan's* properties adapt it well to automotive applications, where vibration absorption is desirable.

To secure closer liaison between Mobay's production and research departments located at its New Martinsville, West Virginia, plant, which is near Pittsburgh, and its sales, development and administrative departments, which are in St. Louis, it was decided to re-locate the latter offices in a Pittsburgh suburb near the plant. The move was made early in 1958.

Shawinigan Resins Corporation

Two new plants of Shawinigan Resins Corporation—owned jointly with Shawinigan Chemicals Limited of Canada—came on stream. The new vinyl butyral resin facilities, which are adjacent to our Trenton, Michigan, plant, began operating in September. The output is converted by Monsanto at Trenton in previously mentioned new facilities into *Saflex* film for laminating safety glass. These new plants provide the nearby automotive and other customers with a desirable additional source of supply.

Shawinigan's new *Gelvatol* plant at Springfield came on stream also in September. *Gelvatol* is a polyvinyl alcohol and is consumed in adhesives, textile sizing, paper coatings and films.

The year 1957 was profitable for Shawinigan.

Plax Corporation

In November we purchased from the Owens-Illinois Glass Company its 50 per cent ownership in the Plax Corporation of Hartford, Connecticut. There were 325,000 Monsanto common shares issued in payment to Owens-Illinois; its officers have expressed the intention of retaining the shares as an investment.

Plax is a large producer of formed plastics, including polyethylene squeeze bottles and *Polyflex* — a bi-oriented polystyrene sheeting. We believe *Polyflex's* potential markets are large; that the close association with Plax and the Emhart Manufacturing Corporation of Hartford, which owns the other 50 per cent of Plax's shares, will accelerate both the growth of *Polyflex* and the development of other unique, formed plastics. Emhart's activities, which embrace the design and manufacture of automatic machinery, complement ours, which are primarily chemical and physical. The partnership will, we hope, be productive of important plastic developments. In 1957 Plax earned $439,495 on sales of $12,255,628. In 1956 it earned $452,196 on sales of $10,028,774.

NEW GENERAL OFFICES

After more than a half century at their previous location, the company's general offices were moved to a 252-acre tract in suburban St. Louis. There, during October, 3 identical office buildings and an executive building, providing 385,000 gross square feet of space, were occupied by some 1,600 employes.

For the first time since 1951 our chief executives, 9 staff departments and 5 St. Louis-based divisions are at one site, instead of at 4 widely scattered locations in the St. Louis area. Now all general offices, except those of Lion Oil and Plastics Divisions, are together; efficiency should improve. Those of the Plastics Division will remain at Springfield; those of Lion Oil at El Dorado. Vacating the old offices, which were adjacent to the John F. Queeny Plant, released space required by research and engineering.

The new location was chosen after extensive

analysis of proximity of employes' homes, zoning, availability of transportation and utilities, and the ever-increasing need for parking facilities. The previously mentioned new Inorganic Chemicals Division Research Laboratory is at this location; an Organic Chemicals Division Laboratory for agricultural chemicals research is being built there. In time, more research activity will center there.

We cordially invite shareowners and other friends of the company to visit us in the new quarters.

PERSONNEL

We are happy to report that in June, Dr. Ernest O. Lawrence, of Berkeley, California, joined Monsanto's Board of Directors. Dr. Lawrence has been a recipient of the Nobel Prize in Physics and the Atomic Energy Commission's Fermi Award. He is professor of physics and director of the University of California's Radiation Laboratory. With the increasing importance of physics and electronics in chemical engineering and production, Dr. Lawrence's advice and guidance will be most helpful.

Monsanto's directors and management are appreciative of the loyal assistance of the company's many employes and the understanding support of the company's shareowners throughout the year.

We enter 1958 under economists' forecasts that the "fair" weather enjoyed by the business world in recent years will end. Economists forecast that it will be "partly cloudy," for a short time at least. Although sales and earnings will reflect the economic weather that lies ahead, the Monsanto organization, in our opinion, now has a minimum of weak spots, and the executive staff great depth. The Lion Oil Company, which was merged into Monsanto in 1955, has been assimilated; its former inorganic chemical activities have been absorbed successfully by the Inorganic Chemicals Division, and the Lion organization is concentrating all its talents on petroleum activities in which ample opportunities exist. Our plants are, in the main, as efficient as we know how to make them. Important process problems with which we have been concerned in the past, and of which you have been advised from time to time, have been solved or solutions are in sight.

Associated and subsidiary companies in which we have such large investments are well staffed with able people in key positions. A future abounding with opportunities is ahead of each of them, as it is of us in the parent company.

After the words "placed in orbit" came into common usage, Americans suddenly realized that their survival depends upon the ingenuity of their scientists. This fact is not novel to the chemical industry. For several years our officers have been stressing the importance of fundamental research and the necessity for training more scientists. In 1953 we produced a motion picture, "Decision for Chemistry," designed to interest young people in science. It has been shown to more than 3,000,000 students and members of civic clubs. Since 1933, we have supported fundamental research by scholarships, fellowships and substantial grants in aid to colleges. Recently we have undertaken an experiment, in cooperation with the National Academy of Sciences and the American Association for the Advancement of Science, by sponsoring on the CBS Network the television program "Conquest," which is designed to give the public a better understanding of the life of the scientist and the great import of his work. We shall continue to do our share in this field in hopes that we can stimulate more young men and women to engage in science—to the benefit of our company and our industry and necessary to the survival of our nation.

Sincerely,

Chairman of the Board

President

St. Louis, Missouri
February 5, 1958

EXPLANATION OF HISTORICAL DATA

Monsanto shareowners' true assets and earnings are not limited to the parent company because through it they also own portions of other companies' assets and profits. To present their overall equities, the following pages contain comparative consolidated financial statements and other data of Monsanto Chemical Company and its domestic and foreign subsidiaries, together with that portion of the assets, liabilities, sales, income, employes, additions to property and other data, which are represented by our ownership in 50 per cent owned companies.

Included in these consolidations are our proportionate 50 per cent interests in the Chemstrand Corporation, Shawinigan Resins Corporation, Plax Corporation, Mobay Chemical Company, Monsanto Boussois (France), Monsanto Kasei (Japan) and the following active subsidiaries:

Monsanto Export Company

Monsanto Canada Limited and subsidiary

Monsanto Mexicana, S.A.

Monsanto Overseas, S.A. (Panama) and subsidiaries

Monsanto Chemicals Limited and British subsidiaries

Monsanto Chemicals (Australia) Limited

Monsanto Chemicals of India Private Limited

L-M Oil Company, Ltd. (Canada)

Subsidiaries participating in oil and gas exploration in Bolivia, Venezuela, Italy and Sicily.

In the years when such enterprises suffered losses, income taxes were reduced in the statements by the amounts they would have been reduced had our portion of the operation been an integral part of the parent company. Conversely when such companies started returning a profit the income taxes shown in the consolidation were not reduced because of the loss carry-over as was the case in the individual enterprise. All the companies operated profitably in 1957 with the exception of Mobay, L-M Oil Company and the oil and gas exploration subsidiaries.

All earnings of the consolidated subsidiaries and associated companies are available for dividends with the exception of Chemstrand, which dividends are limited to the terms of its indenture and to a loan agreement, and in some foreign countries dividends are subject to exchange controls. However, assuming that all such earnings had been received as dividends, we have included in each year's income taxes an estimated provision for additional income and corporate dividend tax which would have been payable.

All dollar amounts are stated in millions except those relating to book values, per share earnings and capital per employe. Foreign currencies have been converted to U. S. dollars at exchange rates prevailing at each year's end.

SHAREOWNER

IN PARENT COMPANY, DOMEST

50% OWNED ASS

Consolidating Only That Percentage of Associated Compa

(In millions)

ASSETS

	1957	1956	1955	1954	1953	10 YEARS AGO 1947	25 YEARS AGO 1932
Current Assets:							
Cash	$ 36.7	$ 32.9	$ 59.3	$ 43.9	$ 49.9	$ 27.7	$ 2.2
Marketable securities	24.5	21.7	24.4	4.9	14.2		.4
Receivables, less reserves	88.5	86.1	72.4	50.5	40.9	19.1	1.1
Inventories	122.6	113.9	100.0	75.0	74.2	31.7	2.7
	$272.3	$254.6	$256.1	$174.3	$179.2	$ 78.5	$ 6.4
Investments, etc.	$ 14.4	$ 7.9	$ 6.4	$ 4.0	$ 5.1	$ 5.5	$ .3
Property:							
Land	$ 11.8	$ 11.5	$ 10.7	$ 7.2	$ 6.7	$ 3.8	$ 1.2
Buildings	128.7	114.5	98.0	78.3	69.5	27.3	3.2
Machinery and equipment	561.4	505.7	455.6	341.0	304.3	101.8	9.0
Phosphate deposits	6.1	5.9	5.6	5.0	4.6	1.2	
Producing oil and gas properties	67.7	64.6	59.5				
Undeveloped oil and gas leaseholds	19.7	15.1	10.4				
	$795.4	$717.3	$639.8	$431.5	$385.1	$134.1	$13.4
Less accumulated depreciation, etc.	289.7	248.8	219.1	134.6	110.1	50.6	4.3
Net property	$505.7	$468.5	$420.7	$296.9	$275.0	$ 83.5	$ 9.1
Deferred Charges	$ 12.7	$ 7.2	$ 7.0	$ 5.8	$ 4.9	$ 1.7	$ .2
	$805.1	$738.2	$690.2	$481.0	$464.2	$169.2	$16.0

See explanation, page 13.

T INTEREST

ID FOREIGN SUBSIDIARIES AND

ATED COMPANIES

h is Represented by Monsanto Shareowners' Equity

(In millions)

LIABILITIES

	1957	1956	1955	1954	1953	10 YEARS AGO 1947	25 YEARS AGO 1932
Current Liabilities:							
Accounts payable and accruals.....	$ 64.8	$ 59.1	$ 51.5	$ 37.6	$ 32.3	$ 18.5	$ 1.5
Income taxes less tax notes.....	31.3	25.5	13.2			10.2	.2
Sinking funds and notes payable...	6.6	6.0	3.1	1.8	1.0	.5	
Employes' bonus awards.....	3.3	3.0	3.1	2.2	2.9		
	$106.0	$ 93.6	$ 70.9	$ 41.6	$ 36.2	$ 29.2	$ 1.7
Long Term Debt.....	$224.7	$214.9	$221.4	$161.8	$161.8	$ 30.5	$ 1.6
Other Liabilities:							
Deferred income taxes.....	$ 22.7	$ 16.2	$ 10.2	$ 5.0	$ 4.5		
Pensions, etc.....	2.8	4.2	4.4	5.2	6.1	$ 6.1	$ .2
Employes' bonus—unawarded.....	1.1	1.2	.9	.7	.7		
	$ 26.6	$ 21.6	$ 15.5	$ 10.9	$ 11.3	$ 6.1	$ .2
Capital Stock and Surplus:							
Minority interests in subsidiaries...	$ 9.9	$ 7.9	$ 7.5	$ 8.6	$ 8.2	$ 4.3	
Preference shares.....	10.2	10.2	10.2	26.0	26.0	15.2	
Common shares.....	44.5	42.9	42.0	26.4	26.4	21.3	$ 7.1
Paid-in surplus.....	188.6	165.9	151.4	102.6	102.5	31.5	2.4
Earned surplus.....	194.6	181.2	171.3	103.1	91.8	31.1	3.0
	$447.8	$408.1	$382.4	$266.7	$254.9	$103.4	$12.5
	$805.1	$738.2	$690.2	$481.0	$464.2	$169.2	$16.0

COMPARATI

OF PARENT COMPANY, SUB

Consolidating Only That Percentage of Associated Compa

(In millions except per share earnings)

	1957	1956	1955	1954	1953	10 YEARS AGO 1947	25 YEARS AGO 1932
Income:							
Net sales	$708.0	$653.8	$630.4	$407.6	$380.2	$158.3	$11.4
Other	6.1	3.7	2.5	2.5	3.0	1.3	.2
	$714.1	$657.5	$632.9	$410.1	$383.2	$159.6	$11.6
Deductions:							
Cost of goods sold	$515.0	$467.7	$434.9	$291.6	$271.2	$111.0	$ 8.5
Selling, administrative, research	87.4	88.1	83.0	62.1	53.6	18.3	1.6
Provision for employes' bonus	1.2	1.4	2.2	.6	1.2		
Income charges	14.4	11.5	11.4	8.2	7.2	2.1	.2
Minority interests	1.0	.9	1.0	1.0	.9	.5	
	$619.0	$569.6	$532.5	$363.5	$334.1	$131.9	$10.3
Income Before Income Taxes	$ 95.1	$ 87.9	$100.4	$ 46.6	$ 49.1	$ 27.7	$ 1.3
Provision for Income Taxes	46.2	42.1	50.1	21.4	23.5	11.7	.3
Net Income	$ 48.9	$ 45.8	$ 50.3	$ 25.2	$ 25.6	$ 16.0	$ 1.0
Per Common Share (1)	$ 2.20	$ 2.13	$ 2.37	$ 1.56	$ 1.58	$ 1.23	$ .13

See explanation, page 13.

(1) Adjusted for splits.

ATISTICS

RIES AND ASSOCIATES

is Represented by Monsanto Shareowners' Equity

(In millions except where italicized)

	1957	1956	1955	1954	1953	10 YEARS AGO 1947	25 YEARS AGO 1932
Depreciation, depletion, etc.....	$ 53.3	$ 46.8	$ 44.7	$ 30.8	$ 25.9	$ 5.9	$ .9
Book value a share (1).....	*$19.24*	*$18.18*	*$17.37*	*$14.68*	*$13.96*	*$6.58*	*$1.62*
Gross additions to property.....	$ 90.1	$ 98.7	$ 61.8	$ 53.3	$ 63.0	$ 40.0	$ .8
Employes (2).....	*30,011*	*27,547*	*26,621*	*21,608*	*20,526*	*15,422*	*2,171*
Net working capital.....	$166.3	$161.0	$185.2	$132.7	$143.0	$ 49.3	$ 4.7
Employed capital (3).....	$672.5	$623.0	$603.8	$428.5	$416.7	$133.9	$14.1
Employed capital per employe.....	*$22,408*	*$22,616*	*$22,681*	*$19,831*	*$20,301*	*$8,682*	*$6,495*
Parent company:							
Cash dividends on common shares	$ 21.5	$ 21.0	$ 20.3	$ 13.1	$ 13.1	$ 8.0	$ .5
Preference shares outstanding.....				*150,000*	*150,000*	*91,632*	
Common shares outstanding (1)...	22.2	21.4	21.0	15.8	15.8	12.8	7.7
Number of shareowners.....	*60,036*	*53,018*	*43,616*	*24,222*	*24,415*	*13,999*	*4,013*

(1) Adjusted for splits. (2) Excluding employes of government plants. (3) Net worth and long term debt.

PARENT COMPANY, DOMESTIC AND CANADIAN SUBSIDIARIES

SALES BY PRODUCT GROUPS

	1957 %	1956 %	1952 %
Plastics, Synthetic Resins and Surface Coatings	30.2	31.5	31.0
Phosphate Products and Detergents	16.6	18.2	17.3
Intermediates and Plasticizers	13.3	13.0	13.4
Petroleum Products—Net of purchases	10.1	8.8	—
Wood Preservatives and Agricultural Chemicals	10.0	9.2	4.6
Rubber and Oil Chemicals	6.7	6.8	11.7
Textile and Paper Chemicals	5.2	2.7	1.7
Pharmaceuticals, Flavors and Condiments	4.1	3.7	8.7
Heavy Chemicals	3.1	4.4	5.6
Other	.7	1.7	6.0
	100.0	100.0	100.0

PARENT COMPANY

SALES TO PUBLIC AND CONSUMING INDUSTRIES

	1957		1956		1955	
	Position	% of Total	Position	% of Total	Position	% of Total
Petroleum	1	11.17	4	9.70	3	10.15
Plastics and Resins	2	10.56	2	10.79	4	9.98
Rubber	3	10.12	3	9.71	2	10.49
Soap and Detergent	4	9.17	6	7.48	6	7.31
Public-Service station sales, "all", etc.	5	8.34	1	12.40	1	12.60
Agriculture	6	8.06	5	7.90	5	9.45
Metal	7	5.85	7	6.38	9	4.35
Textile	8	5.75	10	3.90	10	3.52
Stone, Glass and Vitreous Product	9	5.45	8	6.09	7	6.15
Paint, Varnish and Printing Ink	10	4.00	9	4.08	8	5.43
Paper and Printing	11	3.52	12	3.59	12	2.83
Pharmaceutical	12	3.45	11	3.60	13	2.75
Food	13	3.17	13	3.56	11	3.36
Lumber and Timber	14	2.49	14	2.82	14	2.54
Iron, Steel and Related Product	15	1.98	15	1.49	15	2.09
Transportation Equipment	16	1.44	16	1.24	18	1.01
Color and Dyestuff	17	1.37	17	1.06	17	1.16
Non-ferrous Metal	18	1.11	18	.87	16	1.28
Other		3.00		3.34		3.55
		100.00		100.00		100.00

PETROLEUM OPERATING DATA

	1957	1956	1955	1954	1953
Expenditures for Exploration	$15,647,840	$20,175,034	$13,245,034	$11,095,306	$ 8,772,697
Portion Capitalized	$11,401,163	$14,656,754	$ 9,452,742	$ 8,983,860	$ 6,556,565
Portion Expensed	$ 4,246,677	$ 5,518,280	$ 3,792,292	$ 2,111,446	$ 2,216,132
Leaseholds Expired and Abandoned	$ 2,654,890	$ 1,452,725	$ 964,766	$ 1,242,397	$ 1,479,426
Number of Producing Wells (net)	1,141	1,098	1,062	937	873
Natural Gas Produced—Net MCF [1]	21,456,156	20,906,875	18,622,567	14,490,875	12,269,497
Liquefied Pet. Gas Produced—Bbls	884,804	994,517	744,160	662,875	747,672
Gross Crude Oil Produced—Barrels	8,568,035	9,322,559	9,415,719	8,333,034	7,829,481
Net Crude Oil Produced—Barrels	7,502,654	8,163,161	8,244,486	7,296,572	6,855,173
Average Crude Price Per Barrel	$2.98	$2.75	$2.74	$2.77	$2.77
Domestic Undeveloped Acreage	2,392,507	2,250,591	1,808,552	1,466,878	1,381,930
Domestic Producing Acreage	78,141	71,800	66,144	56,041	42,073
Crude Oil Run to Stills—Barrels	10,527,774	8,393,703	9,294,844	8,853,248	8,421,579
Daily Average Crude Oil Runs—Barrels	28,843	22,934	25,465	24,255	23,073
Refinery Production—Barrels	11,347,931	8,943,546	10,180,126	9,557,350	8,848,183
Station Sales—Gallons	111,562,216	116,057,474	109,476,394	104,445,456	100,482,606
Number of Stations	2,156	2,128	1,955	1,891	1,884
Refined Oil Sales—Gallons[2]	455,120,546	372,239,287	411,997,884	376,151,644	363,954,581

[1] Excludes gas returned to formations.

[2] Includes station sales.

FINANCIAL REVIEW

Consolidated financial statements of Monsanto Chemical Company and its domestic and Canadian subsidiaries are presented on pages 22 through 25 and should be read in conjunction with the following comments and explanations.

Comparative net sales and net income of these companies by quarters were:

	(In Thousands) 1957	1956	Per cent Increase *Decrease*
Sales:			
First quarter	$151,285	$140,611	7.6
Second quarter	145,861	139,646	4.5
Third quarter	139,644	127,124	9.8
Fourth quarter	130,326	134,502	*3.1*
	$567,116	$541,883	4.7
Income:			
First quarter	$ 11,534	$ 11,255	2.5
Second quarter	10,630	10,720	*.8*
Third quarter	8,810	6,838	28.8
Fourth quarter	6,442	9,833	*34.5*
	$ 37,416	$ 38,646	*3.2*

	1957	1956	
Per share earnings were:		As Reported	Adjusted for 1957 Stock Dividend
First quarter	$ .52	$ .53	$ .52
Second quarter	.48	.50	.49
Third quarter	.39	.32	.31
Fourth quarter	.29	.45	.45
	$1.68	$1.80	$1.77
Shares outstanding December 31	22,226,629	21,446,461	21,875,390

Common shares outstanding were increased by the two per cent stock dividend in December, the issuance of 325,000 shares for a 50 per cent interest in Plax Corporation and 19,352 shares purchased by employes through stock options.

Our equity in the net assets of	
Unconsolidated subsidiaries was	$25,343,000
And in 50% owned companies was	64,343,000
Totaling	$89,686,000
Which exceeded our carrying value of	55,330,000
By	$34,356,000

The company's equity in the unaudited 1957 net income of unconsolidated subsidiaries was approximately $2,798,000 and of the 50 per cent owned companies, $10,342,000. Dividends of $1,193,176 were received from these companies in 1957 and have been included in the parent's income.

Charges in 1957 for depreciation and obsolescence were $40,334,821 and for depletion of mines and wells, $2,329,946. In 1956, such charges were $35,621,263 and $2,827,921.

The additional depreciation provided by the sum of the years digits method of computing depreciation on certain property additions over the normal straight line method increased from $3,653,914 in 1956 to $5,530,643.

Other income for 1957 includes insurance recovery for loss in the oxygen unit at Texas City and partial anticipated recovery for loss in the Niran unit at Nitro.

Inventories are valued substantially at the lower of cost or market. The valuation of approximately one-fifth of the inventories has been determined on the last-in, first-out basis. The annual rates of inventory turnover were 4.6 in 1957 and 4.5 in 1956.

Reserves for doubtful accounts were $1,089,563 in 1957 and $1,343,683 in 1956.

The estimated income tax liability is shown after deduction of United States Government securities of $1,981,648 in 1957 and $4,211,593 in 1956.

The May 1, 1958, sinking fund payment on the 2.65% debentures was anticipated by the purchase of $1 million of these debentures.

During 1957, four quarterly cash dividends of 25 cents each were paid on the common shares. Also, a share dividend of two per cent was paid in December.

Monsanto has two stock option plans in effect: the Stock Option Plan authorized by shareowners in 1951 for key employes and the Employes' Stock Plan, authorized by shareowners in 1956 for hourly and salaried employes, except participants of the preceding plan. The status of each and the changes occurring during the year were:

	Stock Option Plan	Employes' Stock Plan
Shares issuable under options outstanding January 1	535,168	302,846
Unoptioned shares available January 1	218,479	-0-
Shares optioned during year	-0-	-0-
Shares exercised during year	19,346	6
Shares in unexercised options which expired	-0-	61,484
Shares issuable under options outstanding December 31	526,092*	241,356
Unoptioned shares available December 31	222,889*	-0-

*Adjusted for 1957 two per cent stock dividend.

Under the Stock Option Plan, 112 options are outstanding, at prices ranging from $27.17 to $45.06 a share, the prices having been adjusted for the 1955 three-for-one split and the 1955, 1956 and 1957 stock dividends of two per cent each. Under the 1956 Employes' Stock Plan, 400,000 Monsanto shares were allotted to employes at $38.50 a share, being 95 per cent of the New York Stock Exchange average price on September 7, 1956, the date on which the plan became effective. No officers, directors or others participating in the 1951 Plan were eligible for the Employes' Stock Plan. At the end of 1957, 6,392 options were outstanding.

PARENT COMPANY, DOMESTI

CONSOLIDATED FINANCIAL POSITIO

ASSETS

	1957	1956	Increase *Decrease*
Current Assets:			
Cash	$ 24,335,109	$ 27,228,127	$ *2,893,018*
Marketable securities	14,137,196	10,923,332	3,213,864
Net receivables	67,969,876	63,984,980	3,984,896
Inventories	94,513,502	92,667,188	1,846,314
	$200,955,683	$194,803,627	$ 6,152,056
Investments and Miscellaneous Assets:			
Investment in and advances to subsidiaries	$ 9,663,925	$ 4,797,910	$ 4,866,015
Investment in and advances to associates	45,666,192	33,978,692	11,687,500
Common shares held for bonus awards	1,132,998	1,170,639	*37,641*
Miscellaneous investments and receivables	3,702,430	2,821,790	880,640
	$ 60,165,545	$ 42,769,031	$17,396,514
Property, Plant and Equipment	$605,000,889	$566,830,022	$38,170,867
Less accumulated depreciation and depletion	242,032,099	212,386,053	29,646,046
Net property	$362,968,790	$354,443,969	$ 8,524,821
Deferred Charges	$ 6,979,285	$ 5,715,671	$ 1,263,614
	$631,069,303	$597,732,298	$33,337,005

The above statement should be read in conjunction with pages 20 and 21 of this report.

ND CANADIAN SUBSIDIARIES

DECEMBER 31, 1957 AND 1956

LIABILITIES

	1957	1956	Increase *Decrease*
Current Liabilities:			
Accounts payable and accruals	$ 49,911,494	$ 45,139,879	$ 4,771,615
Estimated income taxes, less government securities	19,348,258	17,851,612	1,496,646
Sinking fund payments due within one year, less $1,000,000 debentures in treasury	1,790,000	1,750,000	40,000
Employes' bonus awards	3,183,987	2,996,491	187,496
	$ 74,233,739	$ 67,737,982	$ 6,495,757
Long Term Debt, Less Current Portion Above:			
3¼% Debentures, due 1968	$ 16,250,000	$ 17,500,000	$ *1,250,000*
2.65% Debentures, due 1971	28,000,000	29,000,000	*1,000,000*
3⅝% Debentures, due 1972	13,000,000	13,500,000	*500,000*
3¾% Income Debentures, due 2002	91,000,000	91,000,000	
Canadian subsidiary	660,000	700,000	*40,000*
	$148,910,000	$151,700,000	$ *2,790,000*
Other Liabilities:			
Deferred income taxes	$ 14,825,317	$ 10,764,317	$ 4,061,000
Pensions	2,519,582	3,378,310	*858,728*
Employes' bonus—unawarded	692,215	957,730	*265,515*
	$ 18,037,114	$ 15,100,357	$ 2,936,757
Capital Stock and Surplus:			
Common shares—authorized, 25,000,000 shares, par value $2 each; reserved for stock options, 767,448 shares in 1957 and 838,014 shares in 1956; outstanding, 22,226,629 shares in 1957 and 21,446,461 shares in 1956	$ 44,453,258	$ 42,892,922	$ 1,560,336
Surplus:			
Paid-in	179,594,503	157,328,247	22,266,256
Earned	165,840,689	162,972,790	2,867,899
	$389,888,450	$363,193,959	$26,694,491
	$631,069,303	$597,732,298	$33,337,005

CONSOLIDATED INCOME

	1957	1956	Increase *Decrease*
Income:			
Net sales	$567,116,091	$541,883,474	$25,232,617
Dividends from subsidiary and associated companies	1,193,176	1,026,730	166,446
Other	6,162,122	3,956,646	2,205,476
	$574,471,389	$546,866,850	$27,604,539
Deductions:			
Cost of goods sold	$426,030,409	$394,752,477	$31,277,932
Selling, administrative and research expenses	69,888,182	73,427,031	*3,538,849*
Provision for employes' bonus	943,940	1,220,061	*276,121*
Interest expense	5,415,570	5,420,155	*4,585*
Other	4,915,137	2,637,593	2,277,544
	$507,193,238	$477,457,317	$29,735,921
Income Before Provision for Income Taxes	$ 67,278,151	$ 69,409,533	$ *2,131,382*
Provision for Income Taxes:			
Current	$ 25,886,000	$ 25,995,000	$ *109,000*
Deferred	3,976,000	4,769,000	*793,000*
	$ 29,862,000	$ 30,764,000	$ *902,000*
Net Income	$ 37,416,151	$ 38,645,533	$ *1,229,382*

The above statement should be read in conjunction with pages 20 and 21 of this report.

ND CANADIAN SUBSIDIARIES

CONSOLIDATED SURPLUS

PAID-IN SURPLUS

	1957	1956
Balance at Beginning of Year	$157,328,247	$142,323,874
Additions:		
Excess of approximate market value of common capital stock distributed as stock dividends over the par value thereof	12,159,266	14,259,680
Excess of approximate market value over the par value of common capital stock issued for a 50 per cent interest in Plax Corporation	9,587,500	
Excess of amounts received over the par value of common capital stock issued under stock option plans	519,490	744,693
Balance at End of Year	$179,594,503	$157,328,247

EARNED SURPLUS

Balance at Beginning of Year	$162,972,790	$160,420,312
Add—Net Income for the Year	37,416,151	38,645,533
	$200,388,941	$199,065,845
Deductions:		
Dividends on common capital stock:		
Cash—at the rate of $1 a share	$ 21,517,354	$ 20,992,343
Stock—2%	13,030,898	15,100,712
	$ 34,548,252	$ 36,093,055
Balance at End of Year	$165,840,689	$162,972,790

The above statement should be read in conjunction with pages 20 and 21 of this report.

HASKINS & SELLS
CERTIFIED PUBLIC ACCOUNTANTS

BOATMEN'S BANK BUILDING
SAINT LOUIS 2

Monsanto Chemical Company:

We have examined the statement of consolidated financial position of Monsanto Chemical Company and its domestic and Canadian subsidiary companies as of December 31, 1957 and the related statements of consolidated income and surplus for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying statement of consolidated financial position and statements of consolidated income and surplus (pages 22 through 25) present fairly the financial position of Monsanto Chemical Company and its domestic and Canadian subsidiaries at December 31, 1957 and the results of their operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

January 29, 1958.

Haskins & Sells

PARENT COMPANY,

DOMESTIC AND CANADIAN SUBSIDIARIES

SOURCE AND DISPOSITION OF FUNDS

(In Thousands)

	TOTAL	1957	1956	1955	1954	1953
Source of Funds:						
Net income	$168,215	$37,416	$38,646	$ 42,170	$23,700	$26,283
Lion Oil balance at beginning of year	10,389			10,389		
Provisions for:						
Depreciation, etc.	162,278	42,665	38,449	35,029	23,285	22,850
Deferred income taxes	13,575	3,976	4,769	4,830		
Sale of 3¾% income debentures	25,000			25,000		
Common stock issued under options	4,037	558	799	2,680		
	$383,494	$84,615	$82,663	$120,098	$46,985	$49,133
Disposition of Funds:						
Dividends paid:						
Preference	$ 1,755			$ 601	$ 577	$ 577
Common	89,137	$21,517	$20,992	20,343	13,148	13,137
	$ 90,892	$21,517	$20,992	$ 20,944	$13,725	$13,714
Redemption of preference stock:						
Parent company	15,600			15,600		
Canadian subsidiary	850			850		
Plant additions and replacements	236,743	54,404	69,239	45,156	41,302	26,642
Investment in associated companies	19,712	1,450	*2,400*	6,900	6,262	7,500
Investment in subsidiaries	8,026	4,866	1,847	273	989	51
Increase—*decrease* in working capital [1]	16,017	*665*	3,105	11,661	*5,641*	7,557
Sinking fund payments	7,250	2,750	2,750	1,750		
Other—net	*323*	*28*	*3,602*	*981*	1,561	2,727
	$394,767	$84,294	$91,931	$102,153	$58,198	$58,191
Increase—*Decrease* in Cash and Securities	*$ 11,273*	$ 321	*$ 9,268*	$ 17,945	*$ 11,213*	*$ 9,058*

Italics indicate decrease.

(1) Exclusive of cash and securities.

DIRECTORS, OFFICERS AND COMMITTEES

BOARD OF DIRECTORS

EDGAR M. QUEENY, *Chairman* ..... ST. LOUIS
THOMAS H. BARTON ..... EL DORADO, ARK.
CHARLES S. CHESTON ..... PHILADELPHIA
FRANCIS J. CURTIS ..... ST. LOUIS
FREDRICK M. EATON ..... NEW YORK
JOHN L. GILLIS ..... ST. LOUIS
CARROLL A. HOCHWALT ..... ST. LOUIS
DR. ERNEST O. LAWRENCE ..... BERKELEY, CAL.
TRUEMAN M. MARTIN ..... EL DORADO, ARK.
WILLIAM W. SCHNEIDER ..... ST. LOUIS
CHARLES ALLEN THOMAS ..... ST. LOUIS
FELIX N. WILLIAMS ..... ST. LOUIS

EXECUTIVE COMMITTEE

CHARLES ALLEN THOMAS, *Chairman*

CARROLL A. HOCHWALT — WILLIAM W. SCHNEIDER
EDGAR M. QUEENY — FELIX N. WILLIAMS

FINANCE COMMITTEE

CHARLES S. CHESTON, *Chairman*

THOMAS H. BARTON — EDGAR M. QUEENY
FREDRICK M. EATON — WILLIAM W. SCHNEIDER
CHARLES ALLEN THOMAS

Transfer Agent

GUARANTY TRUST COMPANY OF NEW YORK

Registrar

THE CHASE MANHATTAN BANK

OFFICERS

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FRANCIS J. CURTIS ..... *Vice President*
JOHN L. GILLIS ..... *Vice President*
CARROLL A. HOCHWALT ..... *Vice President*
TRUEMAN M. MARTIN ..... *Vice President*
WILLIAM W. SCHNEIDER ..... *Vice President*
FELIX N. WILLIAMS ..... *Vice President*

ROY L. BRANDENBURGER ..... *Vice President*
J. L. CHRISTIAN ..... *Vice President*
R. K. MUELLER ..... *Vice President*
HOWARD K. NASON ..... *Vice President*
CHARLES H. SOMMER ..... *Vice President*
J. RUSSELL WILSON ..... *Vice President*
MARSHALL E. YOUNG ..... *Vice President*

IRVING C. SMITH ..... *Controller*
EDWIN J. PUTZELL JR. ..... *Secretary*
EDWARD D. TOLAND JR. ..... *Treasurer*

EDWIN J. CUNNINGHAM ..... *Assistant Controller*
ALFRED W. LONG ..... *Assistant Controller*
WALTER C. THILKING ..... *Assistant Controller*
EARL J. WIPFLER ..... *Assistant Controller*
CHARLES E. CASPARI JR. ..... *Assistant Secretary*
JEFF DAVIS ..... *Assistant Secretary*
JOHN F. MARTIN ..... *Assistant Treasurer*
J. ROBERT MATLOCK ..... *Assistant Treasurer*
ROLLA H. STOCKE ..... *Assistant Treasurer*

Regional Vice Presidents

EDWARD W. GAMBLE JR. — VICTOR E. WILLIAMS

MONSANTO CHEMICAL COMPANY

- PLANTS
- LABORATORIES
- PETROLEUM PRODUCTION AND EXPLORATION
- AFFILIATED FOREIGN PLANTS AND LABORATORIES
- OFFICES
- SALES AGENTS